

We claim:

1. A method to aid in diagnosing glioma, comprising the steps of:  
 detecting an expression product of at least one gene in a first brain tissue sample suspected of being neoplastic wherein said at least one gene is selected from the group consisting of signal sequence receptor, delta (translocon-associated protein delta); DC2 protein; KIAA0404 protein; symplekin; Huntingtin interacting protein I; plasmalemma vesicle associated protein; KIAA0726 gene product; latexin protein; transforming growth factor, beta 1; hypothetical protein FLJ22215; Rag C protein; hypothetical protein FLJ23471; N-myristoyltransferase 1; hypothetical protein dJ1181N3.1; ribosomal protein L27; secreted protein, acidic, cysteine-rich (osteonectin); Hs 111988; Hs 112238; laminin, alpha 5; protective protein for beta-galactosidase (galactosialidosis); Melanoma associated gene; Melanoma associated gene; E3 ubiquitin ligase SMURF1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; insulin-like growth factor binding protein 7; gene predicted from cDNA with a complete coding sequence; Thy-1 cell surface antigen; Hs 127824; GTP binding protein 2; Homo sapiens mRNA; cDNA DKFZp586D0918 (from clone DKFZp586D0918); cutaneous T-cell lymphoma-associated tumor antigen se20-4; differentially expressed nucleolar TGF-beta1 target protein (DENTT); dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive); smoothelin; integrin, alpha 5 (fibronectin receptor, alpha polypeptide); putative translation initiation factor; retinoic acid induced 14; matrix metalloproteinase 9 (gelatinase B, 92kD gelatinase, 92kD type IV collagenase); Lutheran blood group (Auberger b antigen included); stanniocalcin 2; nuclear factor (erythroid-derived 2)-like 2; protein tyrosine phosphatase, non-receptor type 1; integrin, alpha 10; collagen, type VI, alpha 2; chromosome 21 open reading frame 25; CDC37 (cell division cycle 37, S. cerevisiae, homolog); Hs 16450; Rho guanine nucleotide exchange factor (GEF) 7; creatine kinase, brain; hypothetical protein FLJ10297; hypothetical protein FLJ10350; TNF-induced protein; tumor necrosis factor receptor superfamily, member 12 (translocating chain-association membrane protein); cofilin 1 (non-muscle); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); v-ets avian erythroblastosis virus E26 oncogene homolog 1; protease, cysteine, 1 (legumain); ribosomal protein L13; chromosome 22 open reading frame 5; zinc finger protein 144 (Mel-18); degenerative spermatocyte (homolog Drosophila; lipid desaturase); eukaryotic translation initiation factor 2C, 2; mitochondrial ribosomal protein L45; prostate tumor

over expressed gene 1; NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (14.5kD, B14.5a); glioma endothelial marker 1 precursor; NS1-binding protein; ribosomal protein L38; tuftelin-interacting protein; HLA class II region expressed gene KE2; translocase of inner mitochondrial membrane 17 homolog A (yeast); sudD (suppressor of bimD6, *Aspergillus nidulans*) homolog; heparan sulfate proteoglycan 2 (perlecan); SEC24 (*S. cerevisiae*) related gene family, member A; NADH dehydrogenase (ubiquinone) Fe-S protein 7 (20kD) (NADH-coenzyme Q reductase); DNA segment on chromosome X and Y (unique) 155 expressed sequence; annexin A2; Homo sapiens clone 24670 mRNA sequence; hypothetical protein; matrix metalloproteinase 10 (stromelysin 2); KIAA1049 protein; G protein-coupled receptor; hypothetical protein FLJ20401; matrix metalloproteinase 14 (membrane-inserted); KIAA0470 gene product; solute carrier family 29 (nucleoside transporters), member 1; stanniocalcin 1; stanniocalcin 1; stanniocalcin 1; tumor suppressor deleted in oral cancer-related 1; tumor suppressor deleted in oral cancer-related 1; apolipoprotein C-I; glutathione peroxidase 4 (phospholipid hydroperoxidase); Hs 272106; transcription factor binding to IGHM enhancer 3; hypothetical protein DKFZp762A227; hypothetical protein FLJ22362; CD59 antigen p18-20 (antigen identified by monoclonal antibodies 16.3A5, EJ16, EJ30, EL32 and G344); PRO0628 protein; melanoma-associated antigen recognised by cytotoxic T lymphocytes; LOC88745; Homo sapiens beta-1,3-galactosyltransferase-6 (B3GALT6) mRNA, complete cds; sprouty (*Drosophila*) homolog 4; sprouty (*Drosophila*) homolog 4; Homo sapiens mRNA; cDNA DKFZp434E1515 (from clone DKFZp434E1515); coactosin-like protein; hypothetical protein FLJ21865; Hs296234; KIAA0685 gene product; hypothetical protein FLJ10980; ribosomal protein L10; ribosomal protein S19; Hs 299251; Huntingtin interacting protein K; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 50374; Hs 311780; Hs 212191; v-akt murine thymoma viral oncogene homolog 2; Hs 328774; transducin-like enhancer of split 2, homolog of *Drosophila* E(sp1); KIAA1870 protein; ribosomal protein L10a; peptidylprolyl isomerase A (cyclophilin A); Hs 344224; hypothetical protein FLJ23239; hypothetical protein DKFZp761H221; KIAA1887 protein; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 701679; Homo sapiens cDNA FLJ30634 fis, clone CTONG2002453; Homo sapiens cDNA FLJ32203 fis, clone PLACE6003038, weakly similar to ZINC FINGER PROTEIN 84; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 1035904; hypothetical protein LOC57333; myosin ID; plexin B2; lectin, galactoside-binding, soluble, 8 (galectin 8); double ring-finger protein, Dorfin;

DKFZP434B168 protein; LIM domain binding 2; integrin beta 4 binding protein; synaptopodin; Hs 54828; insulin induced gene 1; acetyl LDL receptor; SREC; excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence); hypothetical protein FLJ22329; schwannomin-interacting protein 1; PTEN induced putative kinase 1; myosin X; Homo sapiens cDNA FLJ32424 fis, clone SKMUS2000954, moderately similar to Homo sapiens F-box protein Fbx25 (FBX25) 97; golgi phosphoprotein 1; splicing factor, arginine/serine-rich 6; laminin, gamma 3; cysteine-rich protein 2; U6 snRNA-associated Sm-like protein LSm7; hypothetical protein FLJ10707; Homo sapiens, Similar to RIKEN cDNA 2310012N15 gene, clone IMAGE:3342825, mRNA, partial cds; macrophage migration inhibitory factor (glycosylation-inhibiting factor); ubiquinol-cytochrome c reductase hinge protein; gap junction protein, alpha 1, 43kD (connexin 43); dihydropyrimidinase-like 3; aquaporin 1 (channel-forming integral protein, 28kD); protein expressed in thyroid; macrophage myristoylated alanine-rich C kinase substrate; procollagen-lysine, 2-oxoglutarate 5-dioxygenase (lysine hydroxylase, Ehlers-Danlos syndrome type VI); protease, serine, 11 (IGF binding); 24-dehydrocholesterol reductase; collagen, type IV, alpha 2; profilin 1; apolipoprotein D; hyaluronoglucosaminidase 2; hypothetical protein FLJ22678; quiescin Q6; ras homolog gene family, member A; ras homolog gene family, member A; plasminogen activator, urokinase; insulin-like growth factor binding protein 3; uridine phosphorylase; KIAA0638 protein; B7 homolog 3; lamin A/C; lamin A/C; lamin A/C; regulator of G-protein signalling 12; proteasome (prosome, macropain) 26S subunit, non-ATPase, 8; Homo sapiens, Similar to RIKEN cDNA 5730528L13 gene, clone MGC:17337 IMAGE:4213591, mRNA, complete cds; prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy); laminin, alpha 4; transcription elongation factor A (SII), 1; lectin, galactoside-binding, soluble, 3 binding protein; ribosomal protein S16; glycophorin C (Gerbich blood group); endothelin receptor type B; serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1; biglycan; small nuclear ribonucleoprotein polypeptide B"; transmembrane 4 superfamily member 2; TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 28 kD; lysyl oxidase-like 2; SRY (sex determining region Y)-box 4; SOX4 SRY (sex determining region Y)-box 4; SRY (sex determining region Y)-box 4; actin related protein 2/3 complex, subunit 2 (34 kD); Homo sapiens cDNA: FLJ23507 fis, clone LNG03128; hypothetical protein FLJ12442; Fas (TNFRSF6)-associated via death domain; mitogen-activated protein kinase kinase kinase 11; TEK

tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal); insulin receptor; cell membrane glycoprotein, 110000M(r) (surface antigen); Homo sapiens cDNA FLJ11863 fis, clone HEMBA1006926; jagged 1 (Alagille syndrome); KIAA0304 gene product; pre-B-cell leukemia transcription factor 2; Homo sapiens cDNA FLJ31238 fis, clone KIDNE2004864; p53-induced protein; complement component 1, q subcomponent, receptor 1; complement component 1, q subcomponent, receptor 1; apolipoprotein E; chemokine (C-C motif) ligand 3; coagulation factor II (thrombin) receptor-like 3; coagulation factor III (thromboplastin, tissue factor); collagen, type I, alpha 1; collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant); C-type (calcium dependent, carbohydrate-recognition domain) lectin, superfamily member 9; cystatin C (amyloid angiopathy and cerebral hemorrhage); endoplasmic reticulum associated protein 140 kDa; ESTs; ESTs; ESTs, Highly similar to hypothetical protein FLJ10350 [Homo sapiens] [H.sapiens]; ESTs, Highly similar to ITB1\_HUMAN Integrin beta-1 precursor (Fibronectin receptor beta subunit) (CD29) (Integrin VLA-4 beta subunit) [H.sapiens]; ESTs, Weakly similar to hypothetical protein FLJ20489 [Homo sapiens] [H.sapiens]; ESTs, Weakly similar to T17346 hypothetical protein DKFZp586O1624.1 - human (fragment) [H.sapiens]; ESTs, Weakly similar to T21371 hypothetical protein F25H8.3 - Caenorhabditis elegans [C.elegans]; eukaryotic translation initiation factor 4A, isoform 1; heme oxygenase (decycling) 1; Hermansky-Pudlak syndrome 4; Homo sapiens cDNA FLJ34888 fis, clone NT2NE2017332; Homo sapiens cDNA FLJ39848 fis, clone SPLEN2014669; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 1977059; Homo sapiens, clone IMAGE:4845226, mRNA; hypothetical protein FLJ22329; hypothetical protein FLJ32205; hypothetical protein MGC4677; inhibin, beta B (activin AB beta polypeptide); insulin-like growth factor binding protein 5; junction plakoglobin; KIAA0620 protein; KIAA0943 protein; likely ortholog of rat vacuole membrane protein 1; Lysosomal-associated multispanning membrane protein-5; major histocompatibility complex, class I, B; major histocompatibility complex, class I, C; matrix Gla protein; matrix metalloproteinase 1 (interstitial collagenase); microtubule-associated protein 1 light chain 3 beta; nerve growth factor receptor (TNFR superfamily, member 16); ribosomal protein S9; ring finger protein 40; S100 calcium binding protein, beta (neural); sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B; SPARC-like 1 (mast9, hevin); tumor necrosis factor, alpha-induced protein 3; UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 3; UDP-GlcNAc:betaGal beta-1,3-N-

acetylglucosaminyltransferase 5; von Willebrand factor; v-akt murine thymoma viral oncogene homolog 2; cyclin-dependent kinase (cdc2-like) 10; ortholog mouse myocytic induction/differentiation originator; brain-specific angiogenesis inhibitor 1 ; EGF-TM7 latrophilin-related protein; sema domain ; integrin, alpha 5 ; likely ortholog of mouse fibronectin type III; Lutheran blood group (Aubergier b antigen included); SSR4, TRAPD; nerve growth factor receptor (TNFR superfamily, member 16); insulin-like growth factor binding protein; leukemia inhibitory factor; protein tyrosine phosphatase, nonreceptor type I; and Homo sapiens, clone IMAGE:3908182, mRNA, partial cds;

and

comparing expression of the at least one gene in the first brain tissue sample with expression of the at least one gene in a second brain tissue sample which is normal, wherein increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample identifies the first brain tissue sample as likely to be neoplastic.

2. The method of claim 1 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least two-fold higher.
3. The method of claim 1 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least five-fold higher.
4. The method of claim 1 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least ten-fold higher.
5. The method of claim 1 wherein the expression product is RNA.
6. The method of claim 1 wherein the expression product is protein.
7. The method of claim 1 wherein the first and second tissue samples are from a human.
8. The method of claim 1 wherein the first and second tissue samples are from the same human.
9. The method of claim 6 wherein the step of detecting is performed using a Western blot.
10. The method of claim 6 wherein the step of detecting is performed using an immunoassay.
11. The method of claim 6 wherein the step of detecting is performed using an immunohistochemical assay.
12. The method of claim 5 wherein the step of detecting is performed using SAGE.

13. The method of claim 5 wherein the step of detecting is performed using hybridization to a microarray.

14. A method of treating a glioma, comprising the step of:

contacting cells of the glioma with an antibody, wherein the antibody specifically binds to an extracellular epitope of a protein selected from the group consisting of plasmalemma vesicle associated protein; KIAA0726 gene product; osteonectin: laminin, alpha 5; collagen, type IV, alpha 1; insulin-like growth factor binding protein 7; Thy-1 cell surface antigen; dysferlin, limb girdle muscular dystrophy 2B; integrin, alpha 5; matrix metalloproteinase 9; Lutheraan blood group, integrin, alpha 10, collagen, type VI, alpha 2; glioma endothelial marker 1 precursor; translocase of inner mitochondrial membrane 17 homolog A; heparan sulfate proteoglycan 2; annexin A2; matrix metalloproteinase 10; G protein-coupled receptor; matrix metalloproteinase 14; solute carrier family 29, member 1; CD59 antigen p18-20; KIAA 1870 protein; plexin B2; lectin, galactoside-binding, soluble, 8; integrin beta 4 binding protein; acetyl LDL receptor; laminin, gamma 3; macrophage migration inhibitory factor; gap junction protein, alpha 1, 43 kD; aquaporin 1; protease, serine, 11; collagen, type IV, alpha 2; apolipoprotein D; plasminogen activator, urokinase; insulin-like growth factor binding protein 3; regulator of G-protein signaling 12; prosaposin; laminin, alpha 4; lectin, galactoside-binding, soluble, 3 binding protein; glycophorin C; endothelin receptor type B; biglycan; transmembrane 4 superfamily member 2; lysyl oxidase-like 2; TEK tyrosine kinase, endothelial; insulin receptor; cell membrane glycoprotein, 110000M(r); jagged 1; plasmalemma vesicle associated protein; TEM13, Thy-1 cell surface antigen; coagulation factor II (thrombin) receptor-like 3; dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive); sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B; integrin, alpha 5 (fibronectin receptor, alpha polypeptide); likely ortholog of rat vacuole membrane protein 1; nerve growth factor receptor (TNFR superfamily, member 16); degenerative spermatocyte homolog, lipid desaturase (Drosophila); TEM1, endosialin; heme oxygenase (decycling) 1; G protein-coupled receptor; C-type (calcium dependent, carbohydrate-recognition domain) lectin, superfamily member 9; matrix metalloproteinase 14 (membrane-inserted); solute carrier family 29 (nucleoside transporters), member 1; likely ortholog of mouse embryonic epithelial gene 1; major histocompatibility complex, class I, C; likely ortholog of mouse fibronectin type III repeat containing protein 1; sprouty homolog 4 (Drosophila); KIAA0620 protein; coagulation factor III (thromboplastin, tissue factor); aquaporin 1 (channel-forming integral protein, 28kDa); major histocompatibility complex, class I, B; Lysosomal-associated multispanning membrane

protein-5; endothelin receptor type B; insulin receptor; complement component 1, q subcomponent, receptor 1; brain-specific angiogenesis inhibitor 1 ; EGF-TM7 latrophilin-related protein; sema domain ; integrin, alpha 5 ; likely ortholog of mouse fibronectin type III; Lutheran blood group (Aubergier b antigen included); SSR4, TRAPD; nerve growth factor receptor (TNFR superfamily, member 16) and complement component 1, q subcomponent, receptor 1; whereby immune destruction of cells of the glioma is triggered.

15. The method of claim 14 wherein the antibody is conjugated to a diagnostic or therapeutic reagent.
16. The method of claim 14 wherein the glioma is multidrug-sensitive.
17. The method of claim 15 wherein the reagent is a chemotherapeutic agent.
18. The method of claim 15 wherein the reagent is a cytotoxin.
19. The method of claim 15 wherein the reagent is a non-radioactive label.
20. The method of claim 15 wherein the reagent is a radioactive compound.
21. The method of claim 14 wherein the glioma is in a human.
22. A method of identifying a test compound as a potential anti-cancer or anti-glioma drug, comprising the step of:

contacting a test compound with a cell which expresses at least one gene selected from the group consisting of signal sequence receptor, delta (translocon-associated protein delta); DC2 protein; KIAA0404 protein; symplekin; Huntingtin interacting protein I; plasmalemma vesicle associated protein; KIAA0726 gene product; latexin protein; transforming growth factor, beta 1; hypothetical protein FLJ22215; Rag C protein; hypothetical protein FLJ23471; N-myristoyltransferase 1; hypothetical protein dJ1181N3.1; ribosomal protein L27; secreted protein, acidic, cysteine-rich (osteonectin); Hs 111988; Hs 112238; laminin, alpha 5; protective protein for beta-galactosidase (galactosialidosis); Melanoma associated gene; Melanoma associated gene; E3 ubiquitin ligase SMURF1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; insulin-like growth factor binding protein 7; gene predicted from cDNA with a complete coding sequence; Thy-1 cell surface antigen; Hs 127824; GTP binding protein 2; Homo sapiens mRNA; cDNA DKFZp586D0918 (from clone DKFZp586D0918); cutaneous T-cell lymphoma-associated tumor antigen se20-4; differentially expressed nucleolar TGF-beta1 target protein (DENTT); dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive); smoothelin; integrin, alpha 5 (fibronectin receptor, alpha polypeptide); putative translation initiation factor; retinoic acid induced 14; matrix metalloproteinase 9 (gelatinase B, 92kD gelatinase, 92kD type IV collagenase); Lutheran

blood group (Auberg b antigen included); stanniocalcin 2; nuclear factor (erythroid-derived 2)-like 2; protein tyrosine phosphatase, non-receptor type 1; integrin, alpha 10; collagen, type VI, alpha 2; chromosome 21 open reading frame 25; CDC37 (cell division cycle 37, *S. cerevisiae*, homolog); Hs 16450; Rho guanine nucleotide exchange factor (GEF) 7; creatine kinase, brain; hypothetical protein FLJ10297; hypothetical protein FLJ10350; TNF-induced protein; tumor necrosis factor receptor superfamily, member 12 (translocating chain-association membrane protein); cofilin 1 (non-muscle); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); v-ets avian erythroblastosis virus E26 oncogene homolog 1; protease, cysteine, 1 (legumain); ribosomal protein L13; chromosome 22 open reading frame 5; zinc finger protein 144 (Me1-18); degenerative spermatocyte (homolog *Drosophila*; lipid desaturase); eukaryotic translation initiation factor 2C, 2; mitochondrial ribosomal protein L45; prostate tumor over expressed gene 1; NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (14.5kD, B14.5a); glioma endothelial marker 1 precursor; NS1-binding protein; ribosomal protein L38; tuftelin-interacting protein; HLA class II region expressed gene KE2; translocase of inner mitochondrial membrane 17 homolog A (yeast); sudD (suppressor of bimD6, *Aspergillus nidulans*) homolog; heparan sulfate proteoglycan 2 (perlecan); SEC24 (*S. cerevisiae*) related gene family, member A; NADH dehydrogenase (ubiquinone) Fe-S protein 7 (20kD) (NADH-coenzyme Q reductase); DNA segment on chromosome X and Y (unique) 155 expressed sequence; annexin A2; Homo sapiens clone 24670 mRNA sequence; hypothetical protein; matrix metalloproteinase 10 (stromelysin 2); KIAA1049 protein; G protein-coupled receptor; hypothetical protein FLJ20401; matrix metalloproteinase 14 (membrane-inserted); KIAA0470 gene product; solute carrier family 29 (nucleoside transporters), member 1; stanniocalcin 1; stanniocalcin 1; stanniocalcin 1; tumor suppressor deleted in oral cancer-related 1; tumor suppressor deleted in oral cancer-related 1; apolipoprotein C-I; glutathione peroxidase 4 (phospholipid hydroperoxidase); Hs 272106; transcription factor binding to IGHM enhancer 3; hypothetical protein DKFZp762A227; hypothetical protein FLJ22362; CD59 antigen p18-20 (antigen identified by monoclonal antibodies 16.3A5, EJ16, EJ30, EL32 and G344); PRO0628 protein; melanoma-associated antigen recognised by cytotoxic T lymphocytes; LOC88745; Homo sapiens beta-1,3-galactosyltransferase-6 (B3GALT6) mRNA, complete cds; sprouty (*Drosophila*) homolog 4; sprouty (*Drosophila*) homolog 4; Homo sapiens mRNA; cDNA DKFZp434E1515 (from clone DKFZp434E1515);



coactosin-like protein; hypothetical protein FLJ21865; Hs296234; KIAA0685 gene product; hypothetical protein FLJ10980; ribosomal protein L10; ribosomal protein S19; Hs 299251; Huntingtin interacting protein K; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 50374; Hs 311780; Hs 212191; v-akt murine thymoma viral oncogene homolog 2; Hs 328774; transducin-like enhancer of split 2, homolog of Drosophila E(sp1); KIAA1870 protein; ribosomal protein L10a; peptidylprolyl isomerase A (cyclophilin A); Hs 344224; hypothetical protein FLJ23239; hypothetical protein DKFZp761H221; KIAA1887 protein; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 701679; Homo sapiens cDNA FLJ30634 fis, clone CTONG2002453; Homo sapiens cDNA FLJ32203 fis, clone PLACE6003038, weakly similar to ZINC FINGER PROTEIN 84; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 1035904; hypothetical protein LOC57333; myosin ID; plexin B2; lectin, galactoside-binding, soluble, 8 (galectin 8); double ring-finger protein, Dorfin; DKFZP434B168 protein; LIM domain binding 2; integrin beta 4 binding protein; synaptopodin; Hs 54828; insulin induced gene 1; acetyl LDL receptor; SREC; excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence); hypothetical protein FLJ22329; schwannomin-interacting protein 1; PTEN induced putative kinase 1; myosin X; Homo sapiens cDNA FLJ32424 fis, clone SKMUS2000954, moderately similar to Homo sapiens F-box protein Fbx25 (FBX25) 97; golgi phosphoprotein 1; splicing factor, arginine/serine-rich 6; laminin, gamma 3; cysteine-rich protein 2; U6 snRNA-associated Sm-like protein LSm7; hypothetical protein FLJ10707; Homo sapiens, Similar to RIKEN cDNA 2310012N15 gene, clone IMAGE:3342825, mRNA, partial cds; macrophage migration inhibitory factor (glycosylation-inhibiting factor); ubiquinol-cytochrome c reductase hinge protein; gap junction protein, alpha 1, 43kD (connexin 43); dihydropyrimidinase-like 3; aquaporin 1 (channel-forming integral protein, 28kD); protein expressed in thyroid; macrophage myristoylated alanine-rich C kinase substrate; procollagen-lysine, 2-oxoglutarate 5-dioxygenase (lysine hydroxylase, Ehlers-Danlos syndrome type VI); protease, serine, 11 (IGF binding); 24-dehydrocholesterol reductase; collagen, type IV, alpha 2; profilin 1; apolipoprotein D; hyaluronoglucosaminidase 2; hypothetical protein FLJ22678; quiescin Q6; ras homolog gene family, member A; ras homolog gene family, member A; plasminogen activator, urokinase; insulin-like growth factor binding protein 3; uridine phosphorylase; KIAA0638 protein; B7 homolog 3; lamin A/C; lamin A/C; lamin A/C; regulator of G-protein signalling 12; proteasome (prosome, macropain) 26S subunit, non-

ATPase, 8; Homo sapiens, Similar to RIKEN cDNA 5730528L13 gene, clone MGC:17337 IMAGE:4213591, mRNA, complete cds; prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy); laminin, alpha 4; transcription elongation factor A (SII), 1; lectin, galactoside-binding, soluble, 3 binding protein; ribosomal protein S16; glycophorin C (Gerbich blood group); endothelin receptor type B; serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1; biglycan; small nuclear ribonucleoprotein polypeptide B"; transmembrane 4 superfamily member 2; TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 28 kD; lysyl oxidase-like 2; SRY (sex determining region Y)-box 4; SOX4 SRY (sex determining region Y)-box 4; SRY (sex determining region Y)-box 4; actin related protein 2/3 complex, subunit 2 (34 kD); Homo sapiens cDNA: FLJ23507 fis, clone LNG03128; hypothetical protein FLJ12442; Fas (TNFRSF6)-associated via death domain; mitogen-activated protein kinase kinase kinase 11; TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal); insulin receptor; cell membrane glycoprotein, 110000M(r) (surface antigen); Homo sapiens cDNA FLJ11863 fis, clone HEMBA1006926; jagged 1 (Alagille syndrome); KIAA0304 gene product; pre-B-cell leukemia transcription factor 2; Homo sapiens cDNA FLJ31238 fis, clone KIDNE2004864; p53-induced protein; complement component 1, q subcomponent, receptor 1; complement component 1, q subcomponent, receptor 1; apolipoprotein E; chemokine (C-C motif) ligand 3; coagulation factor II (thrombin) receptor-like 3; coagulation factor III (thromboplastin, tissue factor); collagen, type I, alpha 1; collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant); C-type (calcium dependent, carbohydrate-recognition domain) lectin, superfamily member 9; cystatin C (amyloid angiopathy and cerebral hemorrhage); endoplasmic reticulum associated protein 140 kDa; ESTs; ESTs; ESTs, Highly similar to hypothetical protein FLJ10350 [Homo sapiens] [H.sapiens]; ESTs, Highly similar to ITB1\_HUMAN Integrin beta-1 precursor (Fibronectin receptor beta subunit) (CD29) (Integrin VLA-4 beta subunit) [H.sapiens]; ESTs, Weakly similar to hypothetical protein FLJ20489 [Homo sapiens] [H.sapiens]; ESTs, Weakly similar to T17346 hypothetical protein DKFZp586O1624.1 - human (fragment) [H.sapiens]; ESTs, Weakly similar to T21371 hypothetical protein F25H8.3 - *Caenorhabditis elegans* [C.elegans]; eukaryotic translation initiation factor 4A, isoform 1; heme oxygenase (decycling) 1; Hermansky-Pudlak syndrome 4; Homo sapiens cDNA FLJ34888 fis, clone NT2NE2017332; Homo sapiens cDNA FLJ39848 fis, clone SPLEN2014669; Homo sapiens mRNA full length

insert cDNA clone EUROIMAGE 1977059; Homo sapiens, clone IMAGE:4845226, mRNA; hypothetical protein FLJ22329; hypothetical protein FLJ32205; hypothetical protein MGC4677; inhibin, beta B (activin AB beta polypeptide); insulin-like growth factor binding protein 5; junction plakoglobin; KIAA0620 protein; KIAA0943 protein; likely ortholog of rat vacuole membrane protein 1; Lysosomal-associated multispanning membrane protein-5; major histocompatibility complex, class I, B; major histocompatibility complex, class I, C; matrix Gla protein; matrix metalloproteinase 1 (interstitial collagenase); microtubule-associated protein 1 light chain 3 beta; nerve growth factor receptor (TNFR superfamily, member 16); ribosomal protein S9; ring finger protein 40; S100 calcium binding protein, beta (neural); sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B; SPARC-like 1 (mast9, hevin); tumor necrosis factor, alpha-induced protein 3; UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 3; UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 5; von Willebrand factor; v-akt murine thymoma viral oncogene homolog 2; cyclin-dependent kinase (cdc2-like) 10; ortholog mouse myocytic induction/differentiation originator; brain-specific angiogenesis inhibitor 1 ; EGF-TM7 latrophilin-related protein; sema domain ; integrin, alpha 5 ; likely ortholog of mouse fibronectin type III; Lutheran blood group (Aubergier b antigen included); SSR4, TRAPD; nerve growth factor receptor (TNFR superfamily, member 16); insulin-like growth factor binding protein; leukemia inhibitory factor; protein tyrosine phosphatase, nonreceptor type I; and Homo sapiens, clone IMAGE:3908182, mRNA, partial cds;

monitoring an expression product of the at least one gene; and

identifying the test compound as a potential anti-cancer drug if it decreases the expression of the at least one gene.

23. The method of claim 22 wherein the cell is a human cell.
24. The method of claim 22 wherein the cell is a glioma cell.
25. The method of claim 22 wherein the cell is a human glioma cell.
26. The method of claim 22 wherein the expression product is RNA.
27. The method of claim 22 wherein the expression product is protein.
28. The method of claim 22 wherein the cell overexpresses the at least one gene relative to a normal cell of the same tissue.
29. The method of claim 22 wherein expression of at least two of said genes is monitored.

30. The method of claim 22 wherein expression of at least three of said genes is monitored.
31. The method of claim 22 wherein expression of at least four of said genes is monitored.
32. The method of claim 22 wherein the test compound is identified if the decrease in expression is at least 50 %.
33. The method of claim 22 wherein the test compound is identified if the decrease in expression is at least 80 %.
34. The method of claim 22 wherein the decrease in expression is at least 90 %.
35. The method of claim 22 wherein the test compound is identified as an anti-glioma drug.
36. A method to aid in diagnosing glioma, comprising the steps of:
  - detecting an mRNA of at least one gene in a first brain tissue sample suspected of being neoplastic wherein said at least one gene is identified by a tag selected from the group consisting of SEQ ID NO: 1-32; and
  - comparing expression of the at least one gene in the first brain tissue sample with expression of the at least one gene in a second brain tissue sample which is normal, wherein increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample identifies the first brain tissue sample as likely to be neoplastic.
37. The method of claim 36 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least two-fold higher.
38. The method of claim 36 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least five-fold higher.
39. The method of claim 36 wherein the increased expression of the at least one gene in the first brain tissue sample relative to the second tissue sample is at least ten-fold higher.
40. The method of claim 36 wherein the first and second tissue samples are from a human.
41. The method of claim 36 wherein the first and second tissue samples are from the same human.

42. The method of claim 36 wherein the step of detecting is performed using a Western blot.
43. The method of claim 36 wherein the step of detecting is performed using an immunoassay.
44. The method of claim 36 wherein the step of detecting is performed using an immunohistochemical assay.
45. The method of claim 36 wherein the step of detecting is performed using SAGE.
46. The method of claim 36 wherein the step of detecting is performed using hybridization to a microarray.
47. A method of identifying a test compound as a potential anti-cancer or anti-glioma drug, comprising the step of:
  - contacting a test compound with a cell which expresses an mRNA of at least one gene identified by a tag selected from the group consisting of SEQ ID NO: 1-32;
  - monitoring an mRNA of the at least one gene; and
  - identifying the test compound as a potential anti-cancer drug if it decreases the expression of the at least one gene.
48. The method of claim 47 wherein the cell is a human cell.
49. The method of claim 47 wherein the cell is a glioma cell.
50. The method of claim 47 wherein the cell is a human glioma cell.
51. The method of claim 47 wherein the expression product is RNA.
52. The method of claim 47 wherein the expression product is protein.
53. The method of claim 47 wherein the cell overexpresses the at least one gene relative to a normal cell of the same tissue.
54. The method of claim 47 wherein expression of at least two of said genes is monitored.
55. The method of claim 47 wherein expression of at least three of said genes is monitored.
56. The method of claim 47 wherein expression of at least four of said genes is monitored.
57. The method of claim 47 wherein the test compound is identified if the decrease in expression is at least 50 %.
58. The method of claim 47 wherein the test compound is identified if the decrease in expression is at least 80 %.
59. The method of claim 47 wherein the decrease in expression is at least 90 %.

60. The method of claim 47 wherein the test compound is identified as an anti-glioma drug.
61. A method to induce an immune response to glioma, comprising:  
administering to a mammal a protein or nucleic acid encoding a protein selected from the group consisting of: signal sequence receptor, delta (translocon-associated protein delta); DC2 protein; KIAA0404 protein; symplekin; Huntingtin interacting protein I; plasmalemma vesicle associated protein; KIAA0726 gene product; latexin protein; transforming growth factor, beta 1; hypothetical protein FLJ22215; Rag C protein; hypothetical protein FLJ23471; N-myristoyltransferase 1; hypothetical protein dJ1181N3.1; ribosomal protein L27; secreted protein, acidic, cysteine-rich (osteonectin); Hs 111988; Hs 112238; laminin, alpha 5; protective protein for beta-galactosidase (galactosialidosis); Melanoma associated gene; Melanoma associated gene; E3 ubiquitin ligase SMURF1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; collagen, type IV, alpha 1; insulin-like growth factor binding protein 7; gene predicted from cDNA with a complete coding sequence; Thy-1 cell surface antigen; Hs 127824; GTP binding protein 2; Homo sapiens mRNA; cDNA DKFZp586D0918 (from clone DKFZp586D0918); cutaneous T-cell lymphoma-associated tumor antigen se20-4; differentially expressed nucleolar TGF-beta1 target protein (DENTT); dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive); smoothelin; integrin, alpha 5 (fibronectin receptor, alpha polypeptide); putative translation initiation factor; retinoic acid induced 14; matrix metalloproteinase 9 (gelatinase B, 92kD gelatinase, 92kD type IV collagenase); Lutheran blood group (Auberger b antigen included); stanniocalcin 2; nuclear factor (erythroid-derived 2)-like 2; protein tyrosine phosphatase, non-receptor type 1; integrin, alpha 10; collagen, type VI, alpha 2; chromosome 21 open reading frame 25; CDC37 (cell division cycle 37, S. cerevisiae, homolog); Hs 16450; Rho guanine nucleotide exchange factor (GEF) 7; creatine kinase, brain; hypothetical protein FLJ10297; hypothetical protein FLJ10350; TNF-induced protein; tumor necrosis factor receptor superfamily, member 12 (translocating chain-association membrane protein); cofilin 1 (non-muscle); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); splicing factor proline/glutamine rich (polypyrimidine tract-binding protein-associated); v-ets avian erythroblastosis virus E26 oncogene homolog 1; protease, cysteine, 1 (legumain); ribosomal protein L13; chromosome 22 open reading frame 5; zinc finger protein 144 (Mel-18); degenerative spermatocyte (homolog Drosophila;

lipid desaturase); eukaryotic translation initiation factor 2C, 2; mitochondrial ribosomal protein L45; prostate tumor over expressed gene 1; NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (14.5kD, B14.5a); glioma endothelial marker 1 precursor; NS1-binding protein; ribosomal protein L38; tuftelin-interacting protein; HLA class II region expressed gene KE2; translocase of inner mitochondrial membrane 17 homolog A (yeast); sudD (suppressor of bimD6, *Aspergillus nidulans*) homolog; heparan sulfate proteoglycan 2 (perlecan); SEC24 (*S. cerevisiae*) related gene family, member A; NADH dehydrogenase (ubiquinone) Fe-S protein 7 (20kD) (NADH-coenzyme Q reductase); DNA segment on chromosome X and Y (unique) 155 expressed sequence; annexin A2; Homo sapiens clone 24670 mRNA sequence; hypothetical protein; matrix metalloproteinase 10 (stromelysin 2); KIAA1049 protein; G protein-coupled receptor; hypothetical protein FLJ20401; matrix metalloproteinase 14 (membrane-inserted); KIAA0470 gene product; solute carrier family 29 (nucleoside transporters), member 1; stanniocalcin 1; stanniocalcin 1; stanniocalcin 1; tumor suppressor deleted in oral cancer-related 1; tumor suppressor deleted in oral cancer-related 1; apolipoprotein C-I; glutathione peroxidase 4 (phospholipid hydroperoxidase); Hs 272106; transcription factor binding to IGHM enhancer 3; hypothetical protein DKFZp762A227; hypothetical protein FLJ22362; CD59 antigen p18-20 (antigen identified by monoclonal antibodies 16.3A5, EJ16, EJ30, EL32 and G344); PRO0628 protein; melanoma-associated antigen recognised by cytotoxic T lymphocytes; LOC88745; Homo sapiens beta-1,3-galactosyltransferase-6 (B3GALT6) mRNA, complete cds; sprouty (*Drosophila*) homolog 4; sprouty (*Drosophila*) homolog 4; Homo sapiens mRNA; cDNA DKFZp434E1515 (from clone DKFZp434E1515); coactosin-like protein; hypothetical protein FLJ21865; Hs296234; KIAA0685 gene product; hypothetical protein FLJ10980; ribosomal protein L10; ribosomal protein S19; Hs 299251; Huntingtin interacting protein K; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 50374; Hs 311780; Hs 212191; v-akt murine thymoma viral oncogene homolog 2; Hs 328774; transducin-like enhancer of split 2, homolog of *Drosophila* E(sp1); KIAA1870 protein; ribosomal protein L10a; peptidylprolyl isomerase A (cyclophilin A); Hs 344224; hypothetical protein FLJ23239; hypothetical protein DKFZp761H221; KIAA1887 protein; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 701679; Homo sapiens cDNA FLJ30634 fis, clone CTONG2002453; Homo sapiens cDNA FLJ32203 fis, clone PLACE6003038, weakly similar to ZINC FINGER PROTEIN 84; Homo

sapiens mRNA full length insert cDNA clone EUROIMAGE 1035904; hypothetical protein LOC57333; myosin ID; plexin B2; lectin, galactoside-binding, soluble, 8 (galectin 8); double ring-finger protein, Dorfin; DKFZP434B168 protein; LIM domain binding 2; integrin beta 4 binding protein; synaptopodin; Hs 54828; insulin induced gene 1; acetyl LDL receptor; SREC; excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence); hypothetical protein FLJ22329; schwannomin-interacting protein 1; PTEN induced putative kinase 1; myosin X; Homo sapiens cDNA FLJ32424 fis, clone SKMUS2000954, moderately similar to Homo sapiens F-box protein Fbx25 (FBX25) 97; golgi phosphoprotein 1; splicing factor, arginine/serine-rich 6; laminin, gamma 3; cysteine-rich protein 2; U6 snRNA-associated Sm-like protein LSm7; hypothetical protein FLJ10707; Homo sapiens, Similar to RIKEN cDNA 2310012N15 gene, clone IMAGE:3342825, mRNA, partial cds; macrophage migration inhibitory factor (glycosylation-inhibiting factor); ubiquinol-cytochrome c reductase hinge protein; gap junction protein, alpha 1, 43kD (connexin 43); dihydropyrimidinase-like 3; aquaporin 1 (channel-forming integral protein, 28kD); protein expressed in thyroid; macrophage myristoylated alanine-rich C kinase substrate; procollagen-lysine, 2-oxoglutarate 5-dioxygenase (lysine hydroxylase, Ehlers-Danlos syndrome type VI); protease, serine, 11 (IGF binding); 24-dehydrocholesterol reductase; collagen, type IV, alpha 2; profilin 1; apolipoprotein D; hyaluronoglucosaminidase 2; hypothetical protein FLJ22678; quiescin Q6; ras homolog gene family, member A; ras homolog gene family, member A; plasminogen activator, urokinase; insulin-like growth factor binding protein 3; uridine phosphorylase; KIAA0638 protein; B7 homolog 3; lamin A/C; lamin A/C; lamin A/C; regulator of G-protein signalling 12; proteasome (prosome, macropain) 26S subunit, non-ATPase, 8; Homo sapiens, Similar to RIKEN cDNA 5730528L13 gene, clone MGC:17337 IMAGE:4213591, mRNA, complete cds; prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy); laminin, alpha 4; transcription elongation factor A (SII), 1; lectin, galactoside-binding, soluble, 3 binding protein; ribosomal protein S16; glycophorin C (Gerbich blood group); endothelin receptor type B; serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1; biglycan; small nuclear ribonucleoprotein polypeptide B"; transmembrane 4 superfamily member 2; TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 28 kD; lysyl oxidase-like 2; SRY (sex determining region Y)-box 4; SOX4 SRY (sex determining



region Y)-box 4; SRY (sex determining region Y)-box 4; actin related protein 2/3 complex, subunit 2 (34 kD); Homo sapiens cDNA: FLJ23507 fis, clone LNG03128; hypothetical protein FLJ12442; Fas (TNFRSF6)-associated via death domain; mitogen-activated protein kinase kinase kinase 11; TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal); insulin receptor; cell membrane glycoprotein, 110000M(r) (surface antigen); Homo sapiens cDNA FLJ11863 fis, clone HEMBA1006926; jagged 1 (Alagille syndrome); KIAA0304 gene product; pre-B-cell leukemia transcription factor 2; Homo sapiens cDNA FLJ31238 fis, clone KIDNE2004864; p53-induced protein; complement component 1, q subcomponent, receptor 1; complement component 1, q subcomponent, receptor 1; apolipoprotein E; chemokine (C-C motif) ligand 3; coagulation factor II (thrombin) receptor-like 3; coagulation factor III (thromboplastin, tissue factor); collagen, type I, alpha 1; collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant); C-type (calcium dependent, carbohydrate-recognition domain) lectin, superfamily member 9; cystatin C (amyloid angiopathy and cerebral hemorrhage); endoplasmic reticulum associated protein 140 kDa; ESTs; ESTs; ESTs, Highly similar to hypothetical protein FLJ10350 [Homo sapiens] [H.sapiens]; ESTs, Highly similar to ITB1/HUMAN Integrin beta-1 precursor (Fibronectin receptor beta subunit) (CD29) (Integrin VLA-4 beta subunit) [H.sapiens]; ESTs, Weakly similar to hypothetical protein FLJ20489 [Homo sapiens] [H.sapiens]; ESTs, Weakly similar to T17346 hypothetical protein DKFZp586O1624.1 - human (fragment) [H.sapiens]; ESTs, Weakly similar to T21371 hypothetical protein F25H8.3 - Caenorhabditis elegans [C.elegans]; eukaryotic translation initiation factor 4A, isoform 1; heme oxygenase (decycling) 1; Hermansky-Pudlak syndrome 4; Homo sapiens cDNA FLJ34888 fis, clone NT2NE2017332; Homo sapiens cDNA FLJ39848 fis, clone SPLEN2014669; Homo sapiens mRNA full length insert cDNA clone EUROIMAGE 1977059; Homo sapiens, clone IMAGE:4845226, mRNA; hypothetical protein FLJ22329; hypothetical protein FLJ32205; hypothetical protein MGC4677; inhibin, beta B (activin AB beta polypeptide); insulin-like growth factor binding protein 5; junction plakoglobin; KIAA0620 protein; KIAA0943 protein; likely ortholog of rat vacuole membrane protein 1; Lysosomal-associated multispinning membrane protein-5; major histocompatibility complex, class I, B; major histocompatibility complex, class I, C; matrix Gla protein; matrix metalloproteinase 1 (interstitial collagenase); microtubule-associated protein 1 light chain 3 beta; nerve growth factor

receptor (TNFR superfamily, member 16); ribosomal protein S9; ring finger protein 40; S100 calcium binding protein, beta (neural); sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 6B; SPARC-like 1 (mast9, hevin); tumor necrosis factor, alpha-induced protein 3; UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 3; UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 5; von Willebrand factor; v-akt murine thymoma vial oncogene homolog 2; cyclin-dependent kinase (cdc2-like) 10; ortholog mouse myocytic induction/differentiation originator; brain-specific angiogenesis inhibitor 1 ; EGF-TM7 latrophilin-related protein; sema domain ; integrin, alpha 5 ; likely ortholog of mouse fibronectin type III; Lutheran blood group (Aubergier b antigen included); SSR4, TRAPD; nerve growth factor receptor (TNFR superfamily, member 16); insulin-like growth factor binding protein; leukemia inhibitory factor; protein tyrosine phosphatase, nonreceptor type I; and Homo sapiens, clone IMAGE:3908182, mRNA, partial cds, whereby an immune response to the protein is induced.

62. The method of claim 61 wherein a protein is administered.
63. The method of claim 61 wherein a nucleic acid is administered.
64. The method of claim 63 wherein the nucleic acid is administered intramuscularly.
65. The method of claim 62 further comprising administering an immune adjuvant to the mammal.
66. The method of claim 61 wherein the mammal has a glioma.
67. The method of claim 61 wherein the mammal has had a glioma surgically removed.